1. (CURRENTLY AMENDED) A file server performing file transaction operations in response to file transaction requests by the clients and including a state machine logging mechanism, comprising:

a storage sub-system, and

a control/processing sub-system including

a file system processor performing file transaction operations in response to client requests and controlling file storage operations of the storage sub-system, and

a state machine logging mechanism, including

a state machine log generator for extracting state machine information defining at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a file transaction wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

a state machine log for storing the state machine information, wherein the state machine log generator is responsive to the restoration of operation of the file server after a failure of file server operations for reading the state machine information from the state machine log and restoring the state of execution of a file transaction.

2. (CURRENTLY AMENDED) The file server of claim 1, wherein the state machine logging mechanism further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that is located separately from the control/processing sub-system and communicating with the state machine log generator for receiving and storing mirror copies of the state machine information, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the file server after a failure of file server operations for reading the state machine information from the state machine log mirroring mechanism and restoring the state of execution of a file transaction.

3. (CURRENTLY AMENDED) A file server performing file transaction operations in response to file transaction requests by the clients and including a state machine logging mechanism, comprising:

a storage sub-system, and

first and second control/processing sub-systems, each including a file system processor performing file transaction operations in response to client requests directed to the first and second control/processing sub-systems and controlling file storage operations of the storage sub-system, and

a state machine logging mechanism including a state machine log generator for extracting state machine information defining ~~a~~at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a file transaction of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

a state machine log for storing the state machine information of the corresponding control/processing sub-system, wherein the state machine log generator is responsive to the restoration of operation of the file server after a failure of the corresponding control/processing sub-system for reading the state machine information from the corresponding state machine log and restoring the state of execution of a file transaction of the corresponding control/processing sub-system.

4. (CURRENTLY AMENDED) The file server of claim 3, wherein each control/processing sub-system further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that is located separately from the state machine log mechanism and that is communicating with the state machine log generator of the other control/processing sub-system for receiving and storing copies of the state machine information of the other control/processing sub-system, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system for reading the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a file transaction of the other control/processing sub-system. of execution of a file transaction of the other control/processing sub-system.

5. (CURRENTLY AMENDED) A system resource performing system resource operations in response to requests by the clients and including a state machine logging mechanism, comprising:

a system resource ~~sub-system, and~~

~~a control/processing~~ sub-system ~~including~~

, and

a control/processing sub-system including a resource control processor performing system resource operations in response to client requests and controlling operations of the system resource sub-system, and

a state machine logging mechanism, including a state machine log generator for extracting state machine information defining ~~a~~at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a system resource operation wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

a state machine log for storing the state machine information, wherein the state machine log generator is responsive to the restoration of operation of the system resource after a failure of system resource operations for reading the state machine information from the state machine log and restoring the state of execution of a system resource operation.

6. (CURRENTLY AMENDED) The system resource of claim 5, wherein the state machine logging mechanism further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that is located separately from the control/processing sub-system and communicating with the state machine log generator for receiving and storing mirror copies of the state machine information, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the system resource after a failure of system resource operations for reading the mirror copies of the state machine information from the state machine log mirroring mechanism and restoring the state of execution of a system resource operation.

7. (CURRENTLY AMENDED) A system resource performing system resource operations in response to system resource requests by the clients and including a state machine logging mechanism, comprising:

a system resource sub-system, and

first and second control/processing sub-systems, each including a system processor performing system resource operations in response to client requests directed to the first and second control/processing sub-systems and controlling operations of the system resource sub-system, and

a state machine logging mechanism including a state machine log generator for extracting state machine information defining ~~a~~at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a system resource operation of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

a state machine log for storing the state machine information of the corresponding control/processing sub-system, wherein the state machine log generator is responsive to the restoration of operation of the system resource after a failure of the corresponding control/processing sub-system for reading the state machine information from the corresponding state machine log and restoring the state of execution of a system resource operation of the corresponding control/processing sub-system.

8. (CURRENTLY AMENDED) The system resource of claim 7, wherein each control/processing sub-system further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that is located separately from the state machine log mechanism and that is communicating with the state machine log generator of the other control/processing sub-system for receiving and storing mirror copies of the state machine information of the other control/processing sub-system, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system for reading the mirror copies of the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a system resource operation of the other control/processing sub-system.

9. (CURRENTLY AMENDED) A state machine logging mechanism for use in a system resource performing system resource operations in response to requests by

the clients, the system resource including a system resource sub-system and a control/processing sub-system including a resource control processor performing system resource operations in response to client requests and controlling operations of the system resource sub-system, the state machine logging mechanism comprising:

a state machine log generator for extracting state machine information defining ~~a~~at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a system resource operation wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

a state machine log for storing the state machine information, wherein the state machine log generator is responsive to the restoration of operation of the system resource after a failure of system resource operations for reading the state machine information from the state machine log and restoring the state of execution of a system resource operation.

10. (CURRENTLY AMENDED) The state machine logging mechanism of claim 9, further comprising:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that is located separately from the control/processing sub-system and communicating with the state machine log generator for receiving and storing mirror copies of the state machine information, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the system resource after a failure of system resource operations for reading the mirror copies of the state machine information from the state machine log mirroring mechanism and restoring the state of execution of a system resource operation.

11. (CURRENTLY AMENDED) A state machine logging mechanism for use in a system resource performing system resource operations in response to system resource requests by the clients, the system resource including a system resource sub-system and first and second control/processing sub-systems, each including a system processor performing system resource operations in response to client requests directed to the first and second control/processing sub-systems and controlling operations of the system resource sub-system, the state machine logging mechanism comprising:

in each control/processor sub-system,

a state machine log generator for extracting state machine information defining at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a system resource operation of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

a state machine log for storing the state machine information of the corresponding control/processing sub-system, wherein the state machine log generator is responsive to the restoration of operation of the system resource after a failure of the corresponding control/processing sub-system for reading the state machine information from the corresponding state machine log and restoring the state of execution of a system resource operation of the corresponding control/processing sub-system.

12. (CURRENTLY AMENDED) The state machine logging mechanism of claim 11, further comprising:

in each control/processor sub-system,

a state machine log mirroring mechanism that is functionally integral with the state machine log and that is located separately from the state machine log mechanism and that is communicating with the state machine log generator of the other control/processing sub-system for receiving and storing mirror copies of the state machine information of the other control/processing sub-system, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system for reading the mirror copies of the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a system resource operation of the other control/processing sub-system.

13. (CURRENTLY AMENDED) In a system resource performing system resource operations in response to requests by the clients, the system resource including a system resource sub-system and a control/processing sub-system including a resource control processor performing system resource operations in response to client requests and controlling operations of the system resource sub-system and

including a state machine logging mechanism, a method for logging and restoring the state of execution of system resource operations, comprising the steps of:

during each system resource operation,

extracting state machine information defining ~~a~~at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a system resource operation wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

storing the state machine information, and

upon restoration of operation of the system resource after a failure of system resource operations,

reading the state machine information from the state machine log and restoring the state of execution of a system resource operation.

14. (ORIGINAL) The method for logging and restoring the state of execution of system resource operations of claim 13, further comprising the steps of:

during each system resource operation,

storing mirror copies of the state machine information separately from the control/processing sub-system, and

upon restoration of operation of the system resource after a failure of system resource operations,

reading the mirror copies of the state machine information and restoring the state of execution of a system resource operation.

15. (CURRENTLY AMENDED) In a system resource performing system resource operations in response to system resource requests by the clients, the system resource including a system resource sub-system and first and second control/processing sub-systems, each including a system processor performing system resource operations in response to client requests directed to the first and second control/processing sub-systems and controlling operations of the system resource sub-system, a method for logging and restoring the state of execution of system resource operations, comprising the steps of:

in each control/processor sub-system,

during each system resource operation,

extracting state machine information defining ~~a~~at least one state machine during an execution of an operation, the at least one state machine representing a current state of execution of a system resource operation of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given time, and

storing the state machine information of the corresponding control/processing sub-system, and

upon restoration of operation of the system resource after a failure of the corresponding control/processing sub-system,

reading the state machine information and restoring the state of execution of a system resource operation of the corresponding control/processing sub-system.

16. (ORIGINAL) The method for logging and restoring the state of execution of system resource operations of claim 15, further comprising the steps of:

in each control/processing sub-system,

during each system resource operation of the other control/processing sub-system,

receiving and storing mirror copies of the state machine information of the other control/processing sub-system, and

upon restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system,

reading the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a system resource operation of the other control/processing sub-system.